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China Report

AGRICULTURE

No. 122

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I. GENERAL INFORMATION

REMOTE SENSING USED IN WATER CONSERVANCY

OW150758 Beijing XINHUA in English 0738 GMT 15 Jan 81

[Text] Beijing, 15 Jan (XINHUA)--Chinese scientists will use remote sensing this year to survey changes in the main streams of the Yellow River at its middle and lower reaches, and the water retention capacity of Dongting Lake, according to the Ministry of Water Conservancy.

The survey will provide an accurate information for the study of better ways to bring the disastrous Yellow River under control and combat flooding of the Yangtze, China's longest river. Experts here say that it will be of great importance to the development of the national economy.

Remote sensing is a new technique by which electromagnetic waves radiated or reflected by objects were received from airplanes and satellites. Through analysing them, scientists can discover the properties, shapes, sizes and movements of the objects.

The Yellow River, China's second longest river, carries away 1,600 million tons of silt from the Loess highlands in northwest China every year. Its main stream shifts often in the middle and lower reaches of the 2,000-kilometer-long waterway, constantly jeopardizing the dykes. Surveying with earlier methods was difficult and inaccurate.

The Dongting Lake on the middle reaches of the Yangtze River in Hunan Province, central China, covers an area of 282,000 square kilometers, ranking second in China's fresh water lakes. But the amount of water has dwindled year by year owing to silting, which had reduced its capacity to regulate the Yangtze River water. This is a latent danger to the thriving economy in the Yangtze valley. The new survey will help scientists understand the silting process and make plans for improvement.

China introduced remote sensing in the early 1970s. Under the help of the Ministry of Geology and the Chinese Academy of Sciences, the Ministry of Water Conservancy carried out in the past year remote sensing experiments at the estuaries of the Yellow, Haihe and Pearl rivers and other places. Valuable data including photographs were gained. The ministry set up a remote sensing center in Beijing last August.

CSO: 4020

BRIEFS

BEIJING AGRICULTURE LABORATORIES--Beijing, 17 Jan (XINHUA)--Five new laboratory buildings were completed for the Chinese Academy of Agricultural Sciences in 1980. The academy also added over 4,000 sets of scientific instruments and apparatus in the year. The new laboratories and the new libraries attached have a total floor space of 31,000 square meters, and are now occupied by the institutes of pomiculture, beet, hemp, and tobacco under the academy. Last year, the Academy of Agricultural Sciences spent 30 million yuan in capital construction, the biggest amount ever since its founding in 1957. Apart from the laboratories, the academy also built a number of apartment buildings for its staff, with a total floor space of more than 50,000 square meters. In recent years, the research institutes under the academy have procured a large number of instruments and apparatus as part of the country's effort to restore and step up agricultural research. Among the major pieces added last year were an electron microscope with a magnification of 800,000 times, ultramicro soil analyzers, high performance liquid chromatographs and ultra centrifuges. Some of them were Chinese made while others were imported. Another nine new laboratory buildings and libraries will be completed this year, according to an official from the academy. [Text] [Beijing XINHUA in English 1216 GMT 17 Jan 81]

DROUGHT THREAT EASED--Beijing, 24 Jan (XINHUA)--Rain and snow fell over vast areas in China in the past 3 days, easing the drought which had threatened some major wheat growing provinces, the Central Meteorological Bureau reported today. From 21 January to this morning, an average of one to eight millimeters of snow or 10 to 15 millimeters of rain was recorded in most parts of northern China and in many places along the Huaihe and Yangtze rivers. It is estimated that the precipitation will help to relieve the drought which menaced major wheat producing areas in Shandong and Henan provinces and the northern part of Jiangsu and Anhui provinces. [Text] [OW241646 Beijing XINHUA in English 1626 GMT 24 Jan 81]

CSO: 4020

BRIEFS

AQUATIC PRODUCTS--Wuhe County in Anhui Province caught over 3.2 million jin of aquatic products from its 210,000 mu of water surface last year, more than double of 1979. [Hefei Anhui Provincial Service in Mandarin 1100 GMT 16 Jan 81]

AGRICULTURAL PRODUCTION--Fuyang Prefecture, Anhui, in 1980 produced as much grain as in 1978, a fat year, 420,000 dan of cotton (20 percent over 1978), 540,000 dan of peanuts (more than 4 times that of 1978), 460,000 dan of rapeseed (over 10 times that of 1978), twice as much cocoons as in 1978, 1.37 million head of sheep compared with 1.28 million in 1978 and 1.4 million head of long-haired rabbits compared with 800,000 in 1978. In 1978, the prefecture had about 620,000 head of oxen, horses and mules. The number rose to over 860,000 in 1980. The per capita peasant's yearly income also increased from 33 yuan in 1978 to 65 yuan in 1980. [Hefei Anhui Provincial Service in Mandarin 1100 GMT 17 Jan 81]

IRRIGATION PROJECTS--Anqing Prefecture, Anhui, vigorously builds irrigation projects. As of early January, a total of 520,000 people are working on various irrigation projects, and have completed 17 million cubic meters of stone and earth work. As of now, 50 percent of the projects have been completed. [Hefei Anhui Provincial Service in Mandarin 1100 GMT 18 Jan 81]

CSO: 4007

BEIJING

WATER CONSERVATION EFFORTS DURING DRY YEAR DESCRIBED

Beijing BEIJING RIBAO in Chinese 14 Nov 80 p 1

[Article from a Briefing Given at the Municipal Water Conservancy Bureau: "Municipal Water Conservancy Facilities Show Their Abilities During Drought Year; Assure Water for Industrial Use and for the Life of the City and Also Irrigate 4.7 Million Mu of Farmland; Between January and September, Jinguanting and Miyun Reservoirs Provide 1.6 Billion Cubic Meters of Water"]

[Text] Beijing Municipality's water conservancy facilities played an enormous role during this year's drought. Between January and September, the Jinguanting and Miyun reservoirs both supplied 1.6 billion cubic meters of water to Beijing to assure normal water for industrial use and for the life of the city, and also watered 4.7 million mu of suburban farmland, greatly alleviating damage from the drought.

Beijing is located on the northwestern edge of the North China Plain. The alternation of drought and heavy rains with numerous calamities is a major characteristic of the Beijing area. According to the historical record for the 580 years between 1368 and 1948, 794 large calamities occurred of which 407 were droughts and 387 floods. For the past more than 700 years dating back to the Yuan Dynasty, Beijing has been the political center of the country. Though the feudal rulers of past ages built some water conservancy projects, they were never able to solve the problem of disasters from floods and droughts. Right up until the time of Liberation, the level of production throughout the municipality was very low; there was virtually no industry; and agricultural production was also very antiquated, with total grain output in 1949 amounting to only 830 million jin, and yields averaging only 128 jin per mu.

Following Liberation, under the loving care of the Party Central Committee and through the efforts of CCP committee's at every level, the government and the vast numbers of cadres and masses, Beijing's water conservancy construction showed great accomplishments. During the 30 years since Liberation, 84 large, medium and small reservoirs have been built of which the Guanting, Miyun, and Huairou reservoirs are the backbone, and the total capacity for all of which is almost 7.2 billion cubic meters. The Yongding River diversion and the Jingmi diversion have been built to form the centerpiece of water carrying projects. About 670 kilometers of waterways have been dredged to prevent floods and to drain away excess water, and 310 kilometers of waterways and dikes have been repaired and strengthened. Forty-nine large and medium sluice gates have been built, and pools to intercept the flow of water have been built at more than 480 places. More than 35,700 motor-pumped wells for farm use have been constructed and equipped; pumping stations have been set up at more than 6300 places, and the amount of power in being for irrigation and removal of water is 910,000 horsepower. Irrigation areas of more than 10,000 mu each number 44, and there are 62 hydroelectric power stations with an installed capacity of 240,000 kilowatts.

The economic benefits derived from these projects are extremely apparent. First of all, they protect against flood disasters. The Guanting Reservoir plays a major role in safeguarding the lives and property of the people of the capital, in preserving the safety of government organizations, schools, industrial plants and mines, in keeping open to traffic the Beijing-Guangzhou railroad the Beijing-Shanhaiguan railroad, and highway transportation arteries, and in protecting the farmland on both sides of the Yongding River. Construction of the Miyun Reservoir effectively controlled the flooding of the Chaobai River for an accumulated reduction in grain loss downriver of about 8 billion jin. In addition, it also protected industrial and mining enterprises, cities and towns, rural villages, and people's lives and property downriver. Following dredging of the northern part of the Grand Canal system and the strengthening of the dykes, conditions were created for solving the danger from flooding in the plains area, thereby providing a measure of relief for 2.2 million of the 2.5 million mu of easily flooded land throughout the city, and promoting all around development in Beijing's suburbs of forestry, livestock raising, sideline occupations, and fisheries. The irrigated area has increased from the 210,000 mu low of the period immediately following Liberation to the present 5.11 million mu. The highest grain year (1978) saw an output of more than 3.7 billion jin with yields of 761 jin per mu, a more than six-fold increase over the period immediately following liberation. Water conservancy construction has also preliminarily solved the problem of a serious water shortage for more than 190,000 people and more than 140,000 head of livestock in 526 places in the mountains. In addition, they have provided large amounts of water resources for industry in the capital and for daily life in the city to promote development of construction in the capital. According to statistics, during the period between the construction of the Guanting and Miyun reservoirs until 1979, they have provided 39.1 billion cubic meters of water and generated an accumulated more than 7 billion kilowatt hours of electricity from water power, making a profit for the state of 360 million yuan. They provided steam power plants the water to generate 108.2 billion kilowatt hours of electricity, and also provided heat to some dwellings, setting up the conditions to provide heat to industrial plants. In addition, they provided water to industries such as metallurgy, chemicals, printing and dyeing, and paper making, thereby making an output value for them of 46.8 billion yuan. During the past 20 years, they have supplied an accumulated volume of almost 900 million cubic meters of water for the livelihood of the city.

Nevertheless, some problems also exist in Beijing municipal water conservancy construction. Water resources are inadequate. During the last 10-odd years, a "water shortage" has occurred several times, and close-in suburbs have been forced to tap underground water excessively, creating a funnel area over almost 1000 square kilometers. On the other hand, waste of water is also extremely severe. These problems can be solved only through an intensification of management.

9432
CSO: 4007

SUPPLY PROBLEMS WITH CHINESE CABBAGE EXAMINED

Editor's Note

Beijing BEIJING RIBAO in Chinese 13 Nov 80 p 1

[Text] For the past several days, numerous readers have poured letters and telephone calls into this newspaper to say what they think and air criticisms about this year's supply of Chinese cabbage for winter storage. We feel that everybody's views and criticisms are correct. The way in which Chinese cabbage was supplied for winter storage this year was certainly questionable, mostly, because the authorities concerned passively accepted last year's lessons with frozen vegetables, concerning themselves only with hurrying the sale of the cabbage, not making sufficient assessment of the enthusiasm of residents for storing the cabbage, and practicing unrestricted supply. Specifically, there was no limit on purchases of prime Chinese cabbage; consequently some people were delighted while others were disappointed; a sizeable number of residents were unable to buy Chinese cabbage for winter storage; and quite a few residents had to queue up in the cold weather to buy the cabbage. Furthermore, there was an unhealthy tendency toward back door deals in the supply of cabbage. It is hoped that the authorities concerned will humbly listen to the views of the masses, conscientiously summarize the lessons of experience, make real improvements in their methods of supplying vegetables, guaranteeing that the winter markets will have Chinese cabbage and that its price will not go up. Should anyone take the opportunity to jack up the price of cabbage, they should certainly be dealt with severely.

Official's Comments

Beijing BEIJING RIBAO in Chinese 15 Nov 80 p 1

[Text] On 14 November, a responsible person in the municipal autumn vegetable command made some remarks to a correspondent from this newspaper on the question of Chinese cabbage supply as follows:

Our investigations have shown that in the supply of Chinese cabbage for winter storage this year, some residents in some places were unable to buy prime cabbage, and some residents were even unable to buy any cabbage at all. The reasons was not that the quantity of Chinese cabbage output was less than predicted. This year's output totaled 840 million jin more than the average output for the past 3 years, and the amount of supply to residents was also no less than last year. The party educates us to tell the people the truth, and we are telling the truth. In addition to the effects on supply of an unevenness in allocations and transfers, and failure to act promptly, the main reason for this problem was a change this year in marketing methods. Up until 1975, this city placed no restrictions on the supply of cabbages for winter storage with the result that the masses had to form long queues in order to buy cabbage, and working couples were unable to buy any of it. In order to surmount this drawback, Chinese cabbage was later sold at specific places against coupons, and with a limit on the amount that could be bought. But this way of doing things stretched out the marketing period causing great losses. Opportunities were numerous for attacks by cold waves, and the dangers were great that the cabbage might freeze. It also created numerous difficulties for municipal storage and transportation. Because the municipal government pondered a lot on how to prevent the cabbage from freezing this year, it did not ponder sufficiently well on how to assure that the masses would be able to buy prime cabbage for winter storage. It stopped selling cabbage at specific places and did not limit the amount that could be purchased, with the result that some people were delighted while others were disappointed. It was just as you already know. Some people could buy as much as 1000 jin or even 3000 or 4000 jin of prime cabbage at a time, while others could not buy so much as a jin. Those who had to line up to buy suffered from weariness and the cold, and those who had no time to line up were even worse off. For this, we offer our earnest apologies to the residents. We are now in process of summarizing the lessons of experience and seeking a wide range of views in order to come up with a system for next year that most people will feel is more satisfactory.

Some of the masses who were unable to buy Chinese cabbage for winter storage telephoned or wrote letters to our command headquarters, to newspapers, and to broadcasting stations offering their valuable views and criticisms. This provided an impetus and a spur to our work. We are now taking the following remedial action about this. First of all, for the past several days, we have organized people to interview residents to understand the situation, and continue to solicit views. As of the 11th, in the western part of the city alone, employees of 12 grassroots level shops had called on more than 50 households. These interviews are very helpful both in cementing our relations with the masses and in improving our future work. Secondly, we will diligently do a good job of winter vegetable supply work this year. Right now every vegetable retail shop has revived normal supply and has begun to sell Chinese cabbage. Cabbage stored in commercial cold storage lockers and stored by rural communes and brigades will also be placed on the market continuously. Chinese cabbage stored by communes and brigades must arrive in the market in a planned way, and private apportionment or private sales must be strictly forbidden. This winter the posted retail price for Chinese cabbage will still be the same, at any given time, as it was for the same period last year. We welcome a watch on this by the masses. Additionally, retail units should make deliveries to the families of servicemen and martyrs who are in the habit of storing cabbage for winter use.

Right now temperatures are down, so those units responsible for storing cabbage, and the broad masses of residents, should pay attention to freeze prevention work, take better care of the cabbage, and prevent freeze damage.

The cadres and masses involved in this year's Chinese cabbage supply work from agriculture, commerce, transportation, public security communications, environmental sanitation, and food and beverage units, and from street and residents committees have made very great efforts, and the mass of residents have warmly supported their work. Employees of a vegetable shop in Xuanwu District were the recipients of 192 written or oral expressions of appreciation. To those comrades who participated in this work, we sincerely express our thanks and solicitude.

9632
CSO: 4007

FUJIAN

BRIEFS

FRESHWATER FISH--In 1980, Longxi Prefecture, Fujian, registered a good catch of freshwater fish, with total output reaching 119,000 dan, topping 1979 by 24 percent. Nanjing County yielded 6,500 dan of fish from more than 3,200 mu of water surface, topping 1979 output by 38 percent. Longhai County yielded 52,000 dan of freshwater fish, topping 1979 by 23.8 percent. Longxi Prefecture now has 92,700 mu of water area for freshwater fish breeding, topping 1979 by 11 percent. [Fuzhou Fujian Provincial Service in Mandarin 1035 GMT 18 Jan 81]

AGRICULTURAL HARVEST--Ningde Prefecture, Fujian, reaped a bumper agricultural harvest in 1980, with total grain output over the previous year by 23 million jin. Tea output topped 1979 by 8 percent. It also increased the production of rapeseed, tea oil, soybean and mushroom. Savings deposits in urban and rural areas topped 1979 by 39 percent. [Fuzhou Fujian Provincial Service in Mandarin 1035 GMT 19 Jan 81]

CSO: 4007

IMPROVEMENT OF LOW YIELDING FIELDS UNDERWAY

Guangzhou GUANGDONG NONGYE KEXUE [GUANGDONG AGRICULTURAL SCIENCES] in Chinese No 6, 8 Nov 80 pp 15-18, 37

[Article by Liu Shuji (0491 2885 1015) of the Huanan Academy of Agricultural Sciences: "Improvement of Low Yielding Fields in Guangdong"]

[Excerpts] Of the over 40 million mu of paddy rice fields throughout Guangdong Province, there are over 15 million mu of low yielding fields that produce a per mu yield of 800 jin a year. The potential for increased yields of these low yielding fields is great. As long as measures are taken to correct the cause of low yields, generally an increase of 100 to 200 jin or more can be realized each year and the investment is minimal. Results can be obtained quickly and the increases in yield are visible. Therefore, improving low yielding fields and building high yield and stable yielding farmland with all out efforts is a key measure to rapidly develop our province's agriculture.

Our province's low yielding fields are of many types. The main types that occupy the largest areas are sandy fields, clay fields, yellow muddy fields, cold bottom fields, alkaline fields, alkaline-acidic fields, powdery soil fields and waterlogged fields, covering a total of over 19 million mu. The second type is charcoal type black muddy fields, lime hardpan fields, white streaked muddy fields, the causes of low yields and improvement measures are separately described below.

1. Improvement of Sandy Fields

The area of sandy fields is about 6.87 million mu, constituting 17.6 percent of the area of paddy fields. They are distributed widely in mixed fields, cultivated fields, terrace fields, waterlogged fields and coastal regions.

The entire province has over 5.9 million mu, constituting about 15.2 percent of the area of paddy fields. The areas of encircled fields, waterlogged fields and cultivated fields are the largest. The name of clay fields are ni gu tian, lao sha gu tian, tie ding tian, ying tu tian, ya shi ni tian, gou luan zi tian, si ni tian, wan ni tian, etc. It is heavy and difficult to till, its physical and chemical nature is poor, and paddy rice cannot grow normally in it. Transplanting is frequently difficult. After transplanting, the plants return to green slowly. The plants of the early crop grow too slowly during the beginning period but overly prosperous during the later period. Plants of late crops die early.

Yellow muddy fields are mainly distributed on slopelands in hilly regions. It is the paddy field formed after planting paddy rice in red soil and yellow soil. There are about 2.26 million mu throughout the province, constituting 5.8 percent of the area of paddy fields. The fields called drained fields, lowland fields, side fields and terrace fields by the masses all belong to this type.

Cold bottom fields include muddy fields and rusty paddy fields. They are widely distributed in the mired and cultivated fields in the mountain regions and hilly regions. There are about 1.67 million mu of such fields throughout the province, constituting 4.2 percent of the area of paddy fields.

Alkaline fields are distributed along the sea coast. There are about 1.13 million mu throughout the province. Alkaline-acidic fields are also called fan shuan tian, fan tian and mu shi di tian. They are scattered throughout the province near river outlets on the border of hilly regions and coastal plains. Alkaline-acidic fields and alkaline fields are distributed in a criss cross fashion and cover about 250,000 mu. Alkaline and alkaline-acidic fields together occupy 3.5 percent of the area of paddy fields.

Powdery fields are also called shu fen tian, bi kou sha tian. The fields have a high content of powdery sand which easily settles and becomes hardpan. The fields produce a low yield. The area is about 810,000 mu, constituting 2.1 percent of the area of rice fields throughout the province.

Soaked fields are also called di lang tian, guo di tian. There are over 380,000 mu throughout the province, constituting about 1 percent of the area of paddy fields. They are mainly distributed in the lower reaches of the East River, West River, and North River, such as the low marshy soaked regions in Gaoyao, Sihui, Sanshui, Qingyuan, Huiyang, Boluo, and Dongwan counties. Because their distribution is relatively concentrated, they can be regulated by water conservancy and soil improvements.

9296
CSO: 4007

PROVINCIAL GOVERNMENT REGULATES SUGARCANE PROCUREMENT

Guangzhou NANFANG RIBAO in Chinese 26 Nov 80 pp 1, 2

[Article: "Provincial Government Makes Concrete Regulations on Sugarcane Production Procurement Problems, Puts Into Effect Policy of 'A Ton of Sugar in Excess of Base Figures Equals a Ton of Grain' To Encourage Peasants To Increase Sugarcane Output"]

[Text] In order better to implement the "Circular on Readjustment of Sugarcane Policy To Develop Sugarcane Production" (hereinafter abbreviated as "Circular") issued by the Guangdong Provincial People's Government in September, which instituted a policy of "a ton of sugar in excess of base figures equals a ton of grain," the Provincial People's Government recently issued a supplementary circular providing specific regulations for some problems reported from various places.

Need To Give Attention to Implementation of Sugarcane Production Base Figures

The supplementary circular pointed out that in many places, base figures for sugarcane production presently stop at the county level without being instituted in production teams. Ratified base figures that are to remain unchanged for a period of 5 years, with binding rewards and penalties, are at the core of the implementation of sugarcane policies. Every jurisdiction should rapidly organize forces to go down among the communes and brigades and use to best advantage the period before the beginning of the pressing season--at the latest, before the lunar new year--to put in place base production figures for sugarcane production at the production team level. This will help production teams decide their planting plans, select cane seedlings, and sign procurement contracts with sugar mills.

Expansion of the Sugarcane-Growing Area Must Be Positive, Reliable, and Feasible

The supplementary circular pointed out that after the "Circular" was issued, enthusiasm ran high in numerous areas for the development of sugarcane production, and this was good. But in some other areas, plans for expanded planting were overdone. In some counties, for example, plans for next year's expansion of planting exceeded by two or three times this year's actual growing area. This would not only create a shortage of sugarcane seedlings and impair this year's sugar mill production and the cane farmers' income, but would also impair next year's grain production. This should arouse the serious attention of every jurisdiction. The Provincial People's Government believes that truth must be sought through facts and that general methods must be adapted to local situations; within the next 1 or 2 years plans of all locales for an expansion in the growing of sugarcane must stress the area surrounding existing sugar mills, so as to assure that these existing sugar mills have sufficient cane. In deciding how much sugarcane expansion should take place, action should be in accordance with abilities, combining initiative with reliability. Development of sugarcane production not only requires planned expansion of the sugarcane-growing area, but it also requires the use of scientific cane growing in order to increase output per unit of area. One cannot excessively squeeze the grain-growing area in order to develop sugarcane production, or give up grain production entirely. To do so would be dangerous. Efforts should be made to have a sizable development of sugarcane production, with annual increases in total grain output as well.

Handle Matters Strictly in Accordance With Contracts, and Live Up to Policies for Award Sales

The supplementary circular pointed out that contracts providing for "a ton of sugar in excess of base figures equaling a ton of grain" should be uniformly concluded with production teams by sugar mills in mechanized sugar-producing areas, and by special departments in areas of production by native methods, both issuing certificates and making final accountings. Throughout the province, the production and procurement of sugarcane and sugar and the upward adjustment of plans are the responsibility of the Provincial Planning Commission. Award sales of grain and fertilizer are the responsibility of the administering unit. In other words, wheat and corn are the responsibility of grain departments, and chemical fertilizers are the supply responsibility of sugar mills and special sugar departments. If a production team wants to request the tendering of wheat, corn, or chemical fertilizer, it should so state clearly in writing at the time the contract is drawn up, and this should be reported on the statistical compilation to help the planned organization of allocations and transfers.

Half of the "ton of sugar equals a ton of grain" will be offset against requisition grain procurement quotas, and half will be given in wheat. On the basis of the contracts, requisition procurement quotas for early and late crop grain can be offset in advance for the corresponding year. For brigades with no requisition procurement grain quotas to offset, the proportionate supply of paddy rice will be set by each county according to the stipulations of the "Circular." As long as upward adjustments in polished rice quotas are assured, they may be fixed in accordance with local realities. There will positively be no advance allocations of award sale grain.

Both the sugar mills and the production teams shall strictly abide by the contracts. In principle, sugar mills should allocate fertilizer in advance in accordance with contracts, supplying in advance 40 percent by the end of April, with this amount increasing to 70 percent by the end of August.

Maintain Suguar Mills as Units for Arranging Return of Profits

The supplementary circular pointed out that the return of profits by sugar mills was approved by most prefectures and counties, but that there were individual counties that did not intend for returns or else had made other requests. The

Provincial People's Government believes that to have sugar mills return profits is a major policy for helping increase peasant income, for cementing relations between mills and production teams, and for developing sugarcane production. Every jurisdiction should unswervingly adhere to, carry out, and conscientiously implement this policy and strive to have all, or an overwhelming amount, of the profits and returned funds be truly returned to the hands of production units and producers, with the amount retained not to exceed the proportion prescribed in the "Circular." In principle, the return of profits should be carried out by the sugar mills, and there may be no "evening out of returns."

Various factors may create great disparities in profit-return figures from one mill to another in the major sugarcane-producing counties, and appropriate readjustments will have to be made. While maintaining the differences, counties may propose plans for making readjustments, which may be implemented following examination and approval by the provincial departments in charge of sugar industry production. Profit returns from sugar mills under the province, prefectures, or municipalities shall also be discussed with the counties concerned, joint understandings reached, and specific means for making returns agreed upon. Whether or not commune-operated sugar mills will engage in profit returns is for the counties and communes themselves to decide; the province will not make any uniform ruling on this.

On the Issue of Subsidies for Growing Seedlings

The supplemental circular states that sugarcane seedlings are to be grown by users for their own use. The cane seedlings needed for expansion of acreage are primarily the responsibility of the users themselves, in order to cut down on the need to transport them over distances. Prefectures, counties, and communes can redistribute cane seedlings among themselves and can act on their own to augment them from elsewhere. When provincial departments in charge take care of the shipment of cane seedlings outside the province or outside prefectures from collective production units (including farms), not only may they offset them against the current year's base figure quotas, but they may also enjoy benefits stipulated in the "Circular" for award sales of chemical fertilizer, retention of sugar for their own disposition, price subsidies, and return of profits.

In order to encourage the development of autumn growing of sugarcane, whenever county departments in charge of sugarcane production so approve, not only can autumn-grown sugarcane that is shipped out be offset against basic quota figures for the current year and the stipulated benefits of award sales of chemical fertilizer, retention of sugar, price subsidies, and returns of profits be enjoyed, but an additional 30-percent price subsidy will be made on the state procurement price. Half of the subsidy money will be the responsibility of the state, and half will be the responsibility of the production unit receiving the shipment. For every mu of autumn sugarcane grown by collective production units in the first year, 500 jin may be offset against its quotas for sugarcane to be sold to the state, and the state will subsidize the price it pays at 50 percent of the state procurement price for sugarcane. The state will further make award sales of fertilizer, retention of sugar, and price subsidies in accordance with policy regulations. In mechanized sugar-producing areas, the sugar mills will be responsible, and in sugar-producing areas where native methods are used, commercial departments will be responsible.

In order to encourage the development of high-quality early maturing sugarcane, a 10-percent premium will continue to be paid for Yue 59/65, 62/79, 63/237, and Yindu 997. A 20-percent premium will continue to be paid for the six varieties Guitang No 1, Yuetang 59/264, 54/143, Huanan 56/21, Hefeng No 1, and Zhuawa 3016. These premium price figures are uniform procurement prices nationwide. The additional price subsidy of 8 yuan that is currently provided for by policy will also be paid.

Forty jin per mu of supplemental chemical fertilizer will also be allowed for the special autumn sugarcane nurseries. Provincial agricultural departments shall be responsible for making verifications and discharging the agreement.

The supplemental circular additionally stipulates as follows:

Sugarcane procured by farm sugar mills, no matter whether produced on the farm or by communes and brigades outside the farm, requires the payment of price subsidies. Subsidy funds will first be paid by the sugar mills, after which a final accounting will be rendered by a fiscal unit at the proper level. Approval procedures must be completed before sugar may be shipped outside the province. Provincial departments in charge should approve procedures for shipping sugar outside the province only after places have retained sugar in accordance with policies, and only after state procurement of sugar has been assured and sales quotas have been fulfilled. Sugarcane grown on the private plots of government organizations, schools, and individual commune members may be sold to the state, with prescribed price subsidies and award sales of materials being made. Processed sugarcane is not entitled to a price subsidy or to award sales of materials.

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GUANGDONG

CROP STRUCTURE, VARIETY DISTRIBUTION TO LEAD TO INCREASED YIELD

Guangzhou GUANGDONG NONGYE KEXUE [GUANGDONG AGRICULTURAL SCIENCES] in Chinese No 6, 8 Nov 80 pp 4-6

[Article by Huang Chaowu [7806 6389 2976] of the Huanan Academy of Agricultural Sciences: "On a Balanced Increase in Agricultural Yield in Guangdong Based on Crop Structure and Distribution of Varieties"]

[Text] I. Climatic Characteristics and Changes Since the 1970's in Guangdong

Guangdong has a tropical monsoon climate and a damp subtropical climate. The annual monthly average temperature is generally above 10°C, the annual rainfall averages above 1,500 to 2,000 millimeters. Rainfall occurs between April and September. At this time, the temperature is between 22°C and 26°C. The difference in daytime and nighttime temperatures is 5.4°C to 8.1°C. The relative humidity is about 80 percent. South of the Tropic of Cancer, the annual average temperature is above 22°C. The monthly average temperature in January is 13.6°C to 15.2°C. The duration of sunshine is relatively short but the intensity is strong. Autumn is breezy and there are many clear days. This climatic condition is very beneficial to the growth, development, maturation and harvest of paddy rice and agricultural crops. But disastrous weather also occurs relatively more frequently in Guangdong. For example, the cold wave of early spring causes seedlings to rot and continuous overcast and rain affect the latter period of winter crops, although typhoons in summer and autumn bring beneficial rain water, but the crops lodge, break and suffer from waterlogging. The cold dew wind at the end of autumn and in early winter causes late rice to grow less fully and brings frost damage to crops. Since the 1970's, disastrous weather has showed visible change and intensification.

1. Early Arrival of Cold Dew Wind

Take Guangzhou as an example. During the first 10 days of October, strong cold dew winds occur, causing the daytime average temperature to remain below 20°C for 3 days or more. This happened only once in 10 years during the 1950's and 1960's. During the 1970's, this happened 6 times in 9 years and 7 times in 10 years. In past years, the number of days in October when the daytime average temperature was below 20°C was 15 days in the 1950's, 16 days in the 1960's, and 35 days in the 1970's (counted for 9 years). Light cold dew winds occur when the daytime average temperature remains below 22°C continuously for 3 days or more. The date marking the time when it is 90 percent sure that cold dew winds will not occur was prior to October 9 in the 1950's, prior to October 16 in the 1960's, and prior to October 4 in the 1970's. This shows the cold dew wind has intensified and occurred visibly earlier during the 1970's.

Sunshine has visibly decreased. From 1957 to 1969, the average number of hours of sunshine in October was 224, but from 1970 to 1977, the average number of hours of sunshine in October was 178 (Tu Yuexian [3205 1878 6343] et al, 1979).

2. Pea, Typhoon Season Is Delayed

During the 1950's, 56 percent of the typhoons occurred in August and September. In the 1970's, the peak period of typhoons occurred later. The number of typhoons increased in October, constituting 19 percent of the total number occurring in the year (Tu Yuexian [3205 1878 6343] et al, 1979).

3. Cold Dew Winds and Typhoons Meet

During the 1950's, the cold dew winds that occurred were cold and dry winds. Since the middle of the 1960's, the beginning date of occurrence of the cold dew winds was earlier. In the 1970's, cold dew winds occurring at various places and typhoons met (especially during the middle 10 days of October) and the cold dew winds intensified. They were wet cold dew winds, and the trend is becoming more severe (Ho Dazhang [0149 1129 4545] et al, 1979).

According to statistics for the province, for the past 28 years (1951-1978), cold dew winds occurred a total of 79 times between the middle of September and the end of October (averaging 2.8 times a year). At the same time, a total of 104 typhoons hit and caused damage (an average of 3.7 times a year, 8 in 1964, 7 in 1973). Of the 79 occurrences of cold dew winds, there were 59 times when they met with typhoons (averaging 2 times a year), or over half. Counting by decade, cold dew winds and typhoons met 17 times during the 1950's, 19 times during the 1960's (5 times in 1964), and 23 times during the first 8 years of the 1970's (5 times in 1973). Generally speaking, autumn cold comes early, more typhoons occur in late autumn, and there is little sunshine during the latter part of autumn.

II. Suiting Measures to Local Circumstances and Rational Arrangement of Crop Structure Stimulate Balanced Increases in Yield of Crops

1. Formation of the Double Cropping System and the Triple Cropping System and Their Relationship to Crop Structure

Viewed from the amount of heat in our province, crops can be planted year round. At the beginning period after Liberation, water conservancy conditions were improved, varieties were coupled, and fertilizers increased. Therefore single season rice was changed to the double cropping system of double season paddy rice, or a double cropping system of rape and rice, hemp and rice, and rice and potatoes. Later, the triple cropping system of rice-rice-green manure, rice-rice-vegetables, rice-rice-potatoes, rice-rice-wheat, rice-beans-rice, beans-rice-rice, rice-hemp-rice, rice-rice-tobacco were formed. The use of double cropping or triple cropping systems should take into consideration the suitability of the various crop structures to our province's conditions of the amount of heat. Food grain crops and economic crops should be planted together, paddy rice and various food grain crops should be planted together. If the conditions of the amount of heat are suitable for food grains, then food grains should be planted, if they are suitable for fruits, then fruits should be planted, if they are suitable for vegetables, then vegetables should be planted. This not only produces bumper harvests of food grains, but also produces bumper harvests of economic crops, and the goal of increasing yield and harvests is realized.

Our province also has a lot of dryland, some hills and semimountainous land and slopes, and some enclosed basins. By using a rational crop structure, such as interplanting and companion planting of corn, cassava, beans, peanuts, potatoes, and by rational arrangement of the crop structure for the entire year, not only can food grains be increased, but organic substances of sideline food products, feeds, fertilizers and stalks can also be increased.

Rational rotation of dryland and paddy rice crops, or different crops, or rotation cropping of different types and varieties of the same crop can control diseases and insect damage and can also improve soil fertility and achieve ecological balance.

2. The Structure of the Crops of the Double Cropping System and the Triple Cropping System Should Take Into Consideration Conditions of the Amount of Heat

Conditions of the amount of heat are natural resources. They are affected by weather conditions. When we arrange the crop structure to utilize heat r sources, we cannot act as if we are pulling an arrow on a bow, stretching the bow very tightly. If we do this, our double cropping system or triple cropping system cannot produce increased yields by utilizing the heat conditions very well via the crop structure, but will produce reduced yields. Some agricultural conditions of heat in arranging the crop structure and there are precedents of this causing reduced yields. For example, some regions have planted "Ke zi No 6" as both the early and late crop, and engaged in planting of three crops of paddy rice in a big way. This kind of crop structure has been caused by poor utilization of our province's heat conditions, by going against the laws of nature and existing conditions of production.

Therefore, suiting measures to local circumstances, analyzing the resources of water and heat conditions and characteristics of natural disasters, rationally arranging a double cropping or triple cropping crop structure, working towards benefits and avoiding disasters, developing the advantages and avoiding the shortcomings should all be carried out to seize balanced increases in yield. The department of agriculture of the Huanan Academy of Agricultural Sciences planted the single season rice "Ke zi No 6" in Weng Cheng. It was sown in March, transplanted in April, and harvested between the time after August 7 and August 23. The per mu yield was 1,100 jin. In some areas, a yield of 1,000 jin can be more easily attained by planting a single season rice than by planting double season rice throughout the year. In recent years, hybrid rice has been planted in the northern regions of Guangdong, and a yield of 1,000 jin has been easily attained. Therefore, is it feasible to plant a single intermediate rice in the northern cold regions at high elevations of northern Guangdong to concentrate on the production of intermediate rice, seize a high yield of 1,000 jin of intermediate rice, and then plant potatoes, buck wheat, beans, green manure or wheat according to the conditions of the amount of heat of the locality for seizing high yields of double crops? In the eastern, central and southern fertile fields, double cropping paddy rice can be planted to seize high yields, and then wheat, potatoes, Irish potatoes, beans, vegetables or fertilizer crops can be planted according to local conditions. In the expansive medium and low yielding regions, double cropping can be taken as the main system for double cropping of paddy rice, or a double cropping of rape and rice, or double cropping of rice and rape, or double cropping of rice and potatoes, or double cropping of hemp and rice, or double cropping of corn and paddy rice, etc. Extensive practice has proven that by planting peanuts in the early season in medium and low yielding fields and planting paddy rice as the late crop, the harvest from the single season of rice can approach the level of yield of paddy rice planted as two crops during the whole year.

3. The Crop Structure of the Double Cropping System and the Triple Cropping System Should Be Based on Nurturing the Fertility of the Soil

The soil's fertility is a prerequisite that determines the balanced increase in yields of the double cropping system or the triple cropping system. The depth, softness and fertility of paddy rice soil, the superior granule structure of soil of dryland crops, and improvement of the richness of the content of organic matter and the content of the three elements are the foundations for achieving a balanced increase in yield of crops. With varieties that can yield 1,000 jin per mu, there must be fertile soil and techniques of cultivation that will enable the crop to produce a yield of 1,000 jin. Plowing winter soil and drying the soil under the sun following double cropping are measures to allow the soil to recover its liveliness and to recover fertility through weathering of the soil. Planting of green manure after double cropping is another measure to improve soil fertility. Rotation cropping of paddy rice and dryland crops such as rotation cropping of peanuts and paddy rice, rotation cropping of hemp and rice, rotation cropping of sugar cane and rice, rotation cropping of vegetables and rice, rotation cropping of potatoes and rice, rotation cropping of tobacco and rice, all improve the soil, increase the organic matter in the soil or can improve the fertility of the soil by allowing the soil to weather, and they are also rational arrangements of the crop structure to nurture soil fertility and seize high yields. Planting astragalus chinensis, Chinese trumpet creeper, sesbania, growing pind duckweed and returning rice stalks to the fields are all good methods to increase the soil's organic matter and improve the soil and increase the fertility of the land. Regions implementing double cropping or triple cropping a year should also consider improving fertility of the land. In the triple cropping system, when the balanced increase of food grains can be assured, a definite proportion of the fields should be arranged for planting one fertilizer crop. In the triple cropping system, it is best to have one bean crop.

To increase the yield and balanced increases in yield of the fields of low and medium yield that occupy two-thirds of our province, the first task is to actually increase the fertility of the land. This work requires suiting measures to local circumstances by rational arrangement of double cropping and triple cropping systems to nurture the fields and increase fertility of the land. A balanced increase in yield of medium and low yielding fields will contribute greatly to the development of agricultural production in our province.

4. The Crop Structure of the Double Cropping System and the Triple Cropping System Should Trke Techniques Into Consideration

The yields of the double cropping and triple cropping systems can all be increased. But in the past, the varieties of food grain crops were singular, either two crops of rice and one crop of wheat or three crops of paddy rice. Even though the yields were increased, the costs were too high and the gain was not large. Viewed from technical and economic gains, this was uneconomical. The resulting formation of "high yielding poor brigades" is related to this. This presents a problem to us. How can we arrange the economic crops, implement rational rotation cropping and companion cropping, reduce cost, increase the gain by techniques and economic gains under the prerequisite of assuring food grain production using the double cropping and the triple cropping systems, this means, to increase the yield of food grain crops and increase the yield of economic crops to obtain more gain? This is a problem of arranging the crop structure from the technical and economic points of view by combining the characteristics of the weather of the locality, the soil and the traditional crops in the crop structure. Of course, to actively adjust the crop structure based on suiting measures to local circumstances with the view of overall development cannot be done at once. Here, policy and tasks are involved as well as scientific arrangement. But, this must be done. This must be solved actively from top to bottom.

III. Rational Distribution of Paddy Rice Varieties To Further Balanced Increases in Yield

In our province, there are many early, medium and late maturing varieties bred from early and late rice that produce 800 to 1,000 jin per mu. But our province's annual per mu yield of paddy rice only approaches the level stipulated in the "guidelines." This problem is worth exploring and studying scientifically by agricultural science workers like us.

The varieties of fields of our province are complex. Except for the plains of the Pearl River Delta and the Han River Delta, most belong to hilly regions. Even though paddy rice soils have common properties, because of different ecological conditions, such as light, temperature, water, dampness, soil fertility, moisture content, microorganisms, organic matter, acidity and alkalinity, ratio of sand and clay, soil thickness, and depth of plowing and tilling, they all have their own characteristics. How to plant different types of varieties according to the characteristics of the various types of fields and soils to realize a balanced increase in yields is worth our attention.

Climatic analysis shows our province is rich in heat energy and sunshine is sufficient from mid-June to November. These are advantageous to seizing high and stable yields of paddy rice. But in recent years, reverse spring cold has occurred frequently, cold dew winds have come early, the peak season of typhoons has occurred later, and such adverse weather has been detrimental to our province's paddy rice production. The problem of arranging varieties in production to utilize their advantages and to avoid disasters is worth our attention.

Breeding of paddy rice has developed relatively early in our province. There are high yielding varieties of early, medium and late maturity and tolerant to fertilizers, varieties of medium and high yields that conserve fertilizers, varieties of medium yield that can tolerate infertility, varieties of medium yield that can be suitably planted in various kinds of fields and soils, varieties with a relatively broad adaptability that can produce high yields in high yielding regions and stable yields in medium and low yielding regions, varieties that are tolerant to alkalines and acids, varieties that are resistant to blast of rice, bacterial blight and insects. Based on the characteristics of different varieties and combining cultivation techniques, weather conditions and type of soil, the varieties can be rationally arranged. For the entire province, intermediate maturing varieties should be the main varieties of early rice, coupled with early maturing and intermediate and late maturing varieties. Intermediate and late maturing varieties should be the main varieties for late rice, coupled with early maturing or early and intermediate maturing varieties and rational utilization of early and late maturing dual use varieties. When using the early and late dual use varieties, it is best to use seeds left over from last year. The sowing and transplanting periods should be strictly controlled, and the planting region should be strictly controlled. Rational distribution of varieties can effectively utilize advantageous weather, and can also develop the productive potential of the varieties in fixed soil conditions. It can also resist disasters to a definite degree and seize bumper harvests under various kinds of unfavorable conditions and realize a balanced increase in yield throughout the year. Rational distribution of varieties can realize ecological balance, for example, our province planted one variety, "Ke zi No 6" as both the early and late crop in the past. Damage to late rice by Pachydiplosis oryzae was serious. Also, according to observations by the insect toxicology research laboratory of the Huanan Academy of Agricultural Sciences, in places planted with intermediate rice, late rice was seriously damaged by the Pachydiplosis oryzae, but when intermediate rice was not planted, there were no fields of bridging crops, the Pachydiplosis oryzae of the late crop could be suppressed to a definite degree. All this shows that rational distribution of varieties can achieve ecological balance.

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GUANGDONG

DISTRIBUTION OF PADDY RICE VARIETIES OUTLINED

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[Article by Cai Dacheng [5591 6670 0997] of the Guangdong Provincial Agricultural Department: "On the Distribution of Paddy Rice Varieties in Our Province"]

[Text] Our province's natural conditions are superior and the varieties of paddy rice are rich. According to ecological conditions, production characteristics of each locality and the varieties' adaptability, an important measure to seize high and stable yields of food grains in our province is to suit measures to local circumstances in arranging varieties so that the varieties are rationally distributed, and the potential for increased yields of superior varieties can be developed.

I. Ecological Conditions of the Rice Regions Throughout the Province

The growth and development of paddy rice varieties are closely related to environmental conditions. Temperature, sunshine and rainwater are the major factors for the growth and development of paddy rice. In particular, whether the temperature and light conditions can satisfy the demands importantly affects whether the paddy rice varieties can grow and develop smoothly and whether the high yield properties of superior varieties can be fully developed. Paddy rice originally grows in the tropical zone. It is a short sunshine thermophilous crop. Generally it has to be planted in regions and seasons of higher temperatures. Our province borders Nanling in the north and lies next to the ocean in the south. It has a tropical monsoon climate and damp subtropical climate. It is a region with the highest temperatures, with the richest amount of heat, with the longest frostless period, with sufficient sunshine, plenty of rainfall, and with a long period suitable for the growth of paddy rice. But because of the complex topography, the differences among the climates of the various regions are relatively great, and generally speaking, they are the following regions:

Northern mountain region: This belongs to tropical Central Asia. There are mountains, hills, basins and farmland, and the climates differ greatly. The mountain region has an elevation of 300 to 400 meters above sea level. The mountains are high and the water is cold, there are many foggy days. There is little sunshine. The period of frost is long. The warm weather in spring comes late, overcast and rainy weather in spring occur early and the duration is long.

Autumn drought is relatively serious, cold dew winds come early and the chances for the temperature to rise are slim. The annual average temperature is 18.8°C. The average temperature in January is 8.7°C. The region has the lowest temperature in the province. The safe sowing period of early rice is during the last 10 days of March. The safe growth period for paddy rice is 220 days. The region's basins and farmland are at a lower elevation. The temperature and sunshine are better. Cold dew winds come later. The annual average temperature is about 20°C. The temperature in January is between 9°C and 10°C. Cold dew winds occur between the end of September and the beginning of October. The safe growth period for paddy rice is 240 days.

Central basin and hilly region: The annual average temperature is between 21°C and 22°C, the average temperature in January is 12°C. Frost is more severe in this region. The safe growth period for paddy rice is 250 to 260 days. In spring, the temperatures rise quickly. There are relatively more full days of sunshine and the region is less affected by typhoons.

Chao-shan Plain: The annual average temperature is about 21°C. The average temperature in January is 13°C. The entire region is basically frostless. Rainy days are few in early spring and in September. Sunshine conditions are good. The safe growth period for paddy rice is 270 to 275 days. The threat of typhoons is great.

Plain of the Pearl River Delta: The annual average temperature is about 22°C. There is slight frost. The annual number of hours of sunshine is 1,800 to 2,000. The heat from solar radiation is 107,000 calories. Rainfall is usually 1,700 to 1,800 millimeters, and in areas of torrential rain, the highest amount can reach 2,200 millimeters. The safe growth period for paddy rice can reach 260 to 270 days.

Southern mesas, hilly plains: This region can be divided according to topographical and climatic differences into the hilly region of the Jianjiang Plain and the Leizhou Peninsula region. The hilly region of the Jianjiang Plain has Tianlushan and Yunkaidashan in the north as natural barriers. It is warm in winter. Days of frost are few. Spring is more arid. There is more rain in summer and autumn. The region is easily threatened by typhoons in July and August. The Leizhou Peninsula region has especially sufficient sunshine and is basically frostless. There is little rainfall. The weather is dry in spring. There is plenty of ocean fog. The annual average temperature is 23°C. The safe growth period for paddy rice is over 290 days.

Hainan tropical region: According to topographical and climatic characteristics, this region is divided into the northern hilly region, the eastern hilly region, the southwest coastal mesas and the central mountain region. The northern hilly region has an average annual temperature of 24°C, and it is basically frostless. The annual number of hours of sunshine is 2,200. The amount of heat from solar radiation is 125,000 calories. The rainfall is 1,700 millimeters. Spring drought is severe. There are also more typhoons in autumn. The safe growth period for paddy rice is 340 days. The eastern hilly region has an annual average temperature of about 24°C. It is warm throughout the year. There are many hours of sunshine and the distribution of sunshine is more even. Rainfall is plentiful. The entire year is frostless. There are frequent torrential rains, floods and waterlogging that cause damage. This is the region hit by the greatest number of typhoons. It is also affected by winds of 5 April and dry hot winds. The safe growth period for paddy rice is 340 days. The southwestern coastal areas have an annual average temperature of about 25°C, and it is a region of our province with the highest temperatures, the most sunshine, the least rainfall, the greatest evaporation of soil moisture, and also a region seriously affected by the southwest dry hot wind and spring and autumn drought, but it is less affected by typhoons.

II. Rational Distribution of Paddy Rice Varieties

Summarizing the above it can be seen that the climatic characteristics of different types of regions of our nation are very different. Thus, in paddy rice cultivation, if we wish to achieve high and stable yields, we must rationally arrange the distribution of paddy rice varieties in different regions according to the climatic characteristics of the different types of regions, combine them with the characteristics of each paddy variety, soil conditions, and the techniques of cultivation at each region so that the properties of high yields of each paddy rice variety can be fully developed. This is briefly described below.

The northern mountain region: The early rice of double season rice crops should mainly be "Qing er ai" and "Guang er 104." In the regions not affected by rice blast, it is appropriate to plant some "Zhai ye qing," "Zhen zhu ai," coupled with early maturing varieties "Jian mei zao," "Hong mei Zao" and "Er Jiu qing," "Zhen shan 97." "Guang er 104" has a strong resistance to adversity. During the seedling stage it is tolerant to cold and resists sheath and culm blight, bacterial blight, and rice blast relatively strongly. It conserves fertilizers. It is easy to plant and to manage. Its adaptability is broad, and it is suitable for planting in fields of medium and low fertility. Its maturation period is later than that of "Zhen zhu ai" by 2 to 3 days and the color at maturity is good. "Jian mei zao" possesses the combined characteristics of large panicles and abundance of panicles. It is strongly tolerant to cold during the seedling period, and it can be sown early. Its maturation period is earlier than that of "Zhen zhu ai" by 6 days. It is an early and intermediate maturing variety. Its resistance is average. It is suitable for planting in fields of medium fertility. "Hong mei zao" is more conservative with fertilizers. It is more resistant to rice blast. Its adaptability is broad. Its fruiting percentage is high. Its yield is high. It matures 3 to 5 days later than "Guang lu ai No 4." It is suitable for planting in regions of medium yield. "Zhen shan 97" matures early. It is resistant to blast. "Er jiu qing" matures especially early, and planting it in high and cold mountain regions facilitates arrangement of varieties for the late crop. Late rice can stabilize the planting area of "Guang tang ai," "Ping guang No 2," "Qiu hai zao No 3" and "Yi li zao." Hybrid rice such as "Shan you No 2," "Shan you No 6," "Wei you No 3" and "Wei you No 6" combinations should be actively but surely developed. "Guang er 104" and "Gui chao No 2" should be appropriately replanted in autumn. The growth period of "Gui chao No 2" replanted in autumn is still relatively long, and it must be appropriately sown and transplanted early so that it will avoid the cold dew winds. Single season rice regions can be planted mainly with hybrid paddy rice, coupled with "Zhen zhu ai," "Gui chao No 2" and "Guang er 104." To change the single season rice to double season rice, "Bin ai geng," "Li ming" and "Wan geng 1175" varieties can be used as late rice. Geng rice is tolerant to fertilizers and resists lodging. Its resistance to cold dew wind is strong. Its yield is not low and its use can be expanded.

Central basin and hilly region: The early rice in double season rice regions should mainly be intermediate maturing varieties, or appropriate medium and late maturing varieties coupled with early maturing varieties. The intermediate maturing variety should mainly be "Qing er ai," and the planting area of "Guang er 104" should be actively expanded. "Zhai ye qing" and "Zhen zhu ai" have already been planted for many years. Their resistance to adversity has degenerated, but the masses have acquired experience and the habit of cultivating them. If they are purified well, they can still be appropriately planted. The intermediate and late maturing variety "Gui chao No 2," and the varieties of the Ke-6 line require sufficient fertilizers and a higher level of management. They can be planted more in high yielding regions where the water and fertilization conditions are good and the management level is high. But this type of variety is easily afflicted by blast and bacterial blight, and farmland basic construction should be done well and unit area irrigation and unit area drainage should be implemented to control the development and spread of the disease.

Late rice should mainly be the typical intermediate and late maturing "Er bai ai" placenta line (including "Yu lin bao xuan"), coupled with autumn replanting of a part of "Guang er 104," "Gui chao No 2," "Ke guang No 10" and typical early and intermediate maturing varieties "Han lu zao," "Gui yang 121," "Geng gao zao," and "Zao bao tai."

Chaoshan Plain: For early rice, the ratio of early intermediate and late maturing varieties can be 2:3:5 or 1:4:5 with the intermediate and late maturing varieties as the main ones, coupled partly with early maturing varieties. The early maturing varieties are mainly "Ke jie xuan No 2" and "Hong 410," with appropriate plantings of some "Ke ai zao No 9." The intermediate maturing varieties are mainly "Qing er ai," "Guang jiu No 6," and the planting areas of "Guang er 104" and "Qing tie" should be actively propagated. The intermediate and late maturing variety is mainly "Gui chao No 2."

The early maturing variety for late rice is "Guang tang ai" or autumn replanted "Gui chao" and "Qing er ai." Autumn replanted "Gui chao" was discovered to have suffered from yellow dwarfing over a relatively large area. After typhoons and torrential rains, it easily suffers from bacterial blight. This should be given sufficient attention. At present, "Guang er 104" has a relatively strong resistance to disease and can be planted in parts of the fields. In shallows, infertile and low yielding fields, "Han lu zao" can be appropriately developed. High yielding fields with good conditions can be planted with some hybrid rice since their maturation period is earlier and they can release the fields in time for planting of winter crops. "Er bai ai" and "Bao tai ai" should be mainly used as the intermediate and late maturing varieties.

Plain of the Pearl River Delta: Early rice should mainly be intermediate maturing varieties, coupled with some early maturing and late maturing varieties. Generally, the ratio of early, intermediate and late maturing varieties is 2:7:1 or 2:6:2. The ratio of early and intermediate maturing varieties is large, and they can provide an opening between crops earlier and seedbed plots for late rice, increase multiple planting and enable late rice to be transplanted early and winter crops to be planted early so that high yields can be realized throughout the year. "Qing er ai," "Xie zue 69," "Guang er 104" should be the main intermediate maturing varieties and "Gui chao No 2" should be the main intermediate and late maturing variety, coupled in some regions with "Zao yang 18," "Tai zhen 92," "Guang er 5711," "Xiao qing" and "Cin qing." "Hong mei zao," "Guang lu ai No 4," "Nan zao 34" should be the main early maturing varieties coupled in some areas with "Ke jie xuan No 1," "Zao yang 201," "Qing xiao jin zao" and "Jian mai zao." Counties and cities that have to produce superior quality food grains can plant "Mu xin xuan," "Shuang zhu zhan," "Mu xin zhan" and "Min ke zhan."

Late rice should mainly be the late maturing varieties "Er bai ai" and "Bao xuan No 2." At localities where the people have experience and the conditions are good, appropriate coupling of hybrid rice can be carried out. At many places, "Guang er ai," "Zao ling No 11" (including "Tang zao ling") and "Bao feng ai" varieties have been planted and the yields have been good and they can be continuously planted and their use expanded. Early maturing varieties are mainly for developing superior quality grains, such as "Mu xin xuan," "Hua quan wan zhan" and "Shuang zhu zhan," which have a good quality and a high yield. Counties and cities which have to produce export and superior quality food grains can appropriately plant these. The second choice is autumn replanted "Guang er 104" and "Gui zhao." Some counties have replanted "Xiao qing" and other varieties in autumn. The yields are not low and these varieties can provide openings between crops early for winter plantings.

Plain of the southern mesas: The intermediate maturing varieties and intermediate and late maturing varieties "Qing er ai" and "Gui zao" should be the main varieties for early rice, and "Guang er 104" should be developed at key points, appropriately coupled with late maturing varieties "Xiao jia huo," "Ke liu" and hybrid rice. Hybrid rice manifests a strong resistance to adversity, broad adaptability, high yields in fields of medium and high fertility and at high yielding communes and brigades. All communes and brigades that have good conditions can expand their plantings. Generally "Hong mei zao" and "Ke zi zao No 9" are good early maturing varieties. For late rice, "Er bai ai" and "Bao xuan No 2" can be used as the main varieties, and "Bao guang No 81" and "Yu lin bao xuan" should be actively developed. These two varieties are relatively strongly resistant to rice blast, their adaptability is not bad, and they should be utilized. Early maturing varieties "Guang tang ai," "Tang bai zhan" and "Ping guang No 2" can also be used in combination.

Hainan tropical region: High yielding and temperature sensitive "Ke jie xuan No 17" and varieties of the Ke liu line can be used as early rice. "Xiao jia huo" and "Hao jia huo" have a long growth period. Their yields are high. The quality of rice is good. Their resistance to adversity is strong. When planted in regions afflicted by bacterial blight, they manifest resistance to the disease. Their bumper harvest characteristics are good and they can be planted more widely. The second choice is "Gui zao No 2," "Zao yang 18" which have better bumper harvest characteristics than "Zhen zhu ai" and "Guang bai ai" and they can gradually replace the latter, but "Guang bai ai" has a better resistance than "Gui zao No 2," thus it should still be planted. For late rice, the strongly resistant and more stable yielding "Bao tai ai" should be the main variety, with partial autumn replanting of "Xiao jia huo" and "Hao jia huo." To avoid typhoons and torrential rains, such early maturing varieties as "Ping guang No 2" or "Guang tang ai" should be transplanted appropriately late but the seedling age should not be too long. Generally the most appropriate age is 25 to 30 days. In recent years, this region has selectively bred and test planted new varieties "Tun fu bao," "A bao No 8," "Ke xuan 47-6," "Ke Xuan 47-8," "Qing liu ai," "Wen nong xuan 2," "Chang hong 529" and "Hai chun No 1," "Dong qing qi" and the newly introduced "Yu lin bao xuan." They manifest relatively good bumper harvest characteristics and relatively strong resistance to adversity, and are promising new varieties. They can be demonstrated and tested in suitable regions.

9296
CSO: 4007

BRIEFS

GRAIN TAX--Tiandong County, Guangxi, as of the end of last year had delivered over 42.83 million jin of grain to granaries, overfulfilling the year's delivery quota by over 10 million jin. At the same time, it handed in to the state over 246,000 jin of edible oil which was 14.8 percent above the state assigned quota. [Nanning Guangxi Regional Service in Mandarin 1130 GMT 17 Jan 81]

CSO: 4007

HEBEI

MISUSE OF WATER RESOURCES MUST BE RECTIFIED

Beijing RENMIN RIBAO in Chinese 18 Sep 80 p 2

[Article by Xu Tiecheng [6079 6993 1004] of Hebei Provincial Science Committee]

[Excerpts] I have been engaged in organizational and management work in agricultural sciences in Hebei for 25 Years. I was very moved when I read the editorial titled "Agricultural Yield Increase Depends on Science," appearing in RENMIN RIBAO on 17 July. It points out, "For a long time, those who have power do not understand what to do have no power; this situation must be changed. If those who are outside the field are allowed to continue to lead, their will be no hope for our agriculture." This expresses the words of my own heart. I want to express here my opinions and tell my experiences.

Before the "Great Cultural Revolution," agricultural science and technology in Hebei Province were not particularly backward, compared with the surrounding provinces and cities. During the "Great Cultural Revolution, however, the damage was extremely severe. Soon after the Provincial Revolutionary Committee was established, one important person spoke of "the fact that heaven and earth have been here for thousands of years; fields have been cultivated without science. Afterward, all academies, institutes, and centers of agricultural science in the entire province were abolished, and not a single rural experimental station was preserved. All agricultural science researchers were sent to the rural villages to work.

In the decade of unrest, Hebei Province was for a period of time a province without any agricultural science organization. The status of science and technology was among those things considered not really necessary. In place of agricultural science, there was learning from Dazhai and copying it exactly; every step taken there was an impression [to be copied]. This was called "open-door science, with the major force being workers, farmers, and soldiers." There was also the production test point at Mijiazhuang in Ningjin County as demonstrated by Jiang Qing's class struggle, which was supposed to work instantly. This series of ways denied the validity of science and abolished specialists. Thought were confused. Agriculture in Hebei Province did not have enough water. In order to find the correct technique and policy to develop and utilize water resources, many specialists of water conservancy, hydrological engineering, hydrogeology, soil chemistry, and agricultural geography both within and oustide the province and working in the Hebei Plain repeatedly suggested: "First, the surface water should be fully utilized and several billion cubic meters of water flowing into the ocean every year should be partly retained. Second, the shallow-layer ground water should be used first. It is easier to obtain, more convenient to supplement, and consumes less capital. Third, the deep-layer ground water should not or should rarely be used. It is difficult to mine, even more difficult to supplement, and requires a great deal of investment. Fourth, mechanized wells should be reasonably arranged. They must not be concentrated to mine water, so that ground water funnel development may be prevented." These opinions, however, were not accepted by the leaders of that time.

Under conditions of the crude destruction of objective principles, mechanized wells in Hebei Province were drilled deeper and deeper, and larger and larger mechanized pumps were used. The burden on the masses became heavier and heavier, while ground water funnels became more and more numerous, with the areas becoming larger and larger. The water table receded to become deeper and deeper, and the ground surface of some funnel areas began to sink. According to incomplete statistics, 488,000 new mechanized wells were dug in the 6 years from 1973 to 1978, and 228,000 of these, amounting to 46.7 percent of the drilled new well, have become waste wells. The total investment was 2.3 billion yuan, while the loss from waste wells was 1.07 billion yuan, or 46.5 percent of the total investment. In 1978, 69,543 wells were newly dug in the province; 61,569 of them had to be regarded as waste wells before the year was over. The money spent in well drilling was provided by the state, but a large portion of it was supplied by the farmers. There was no technical policy concerning mining ground water. It was mined for a prolonged time without supplementing. It had always been regarded as "a resource that can be used forever without exhausting it." The mechanized wells were not reasonably arranged; funnels appeared where there had been none, and small funnels turned into large funnels. For example, in 1974, funnels extended to 80 km^2 in Cangzhou, and the ground water table was at about 10m. By May of 1980, the area of funnels had reached 7,050 km^2 and the central water table was as deep as 78m. The ground surface sank 144 mm and the drinking water of the city inhabitants could no longer be guaranteed. (One of the two water supply sites had to be closed.) It became difficult to maintain existing industries. (The state had to stop the water supply for four factories.) Newly planned factories were given up for lack of water.

Before the "Great Cultural Revolution," cotton wilt disease was very rare in Hebei Province. One leader promoted suddenly during the "Great Cultural Revolution" did not understand science at all and was not willing to listen to the suggestions of scientific researchers. He insisted on introducing from the South more than 10 million jin of cotton seeds that were infected by cotton wilt disease. Consequently, the disease spread throughout the province and there is no way of controllling it to this day. A great calamity and a great deal of loss have thus been brought to cotton production.

6168
CSO: 4007

PLAN FOR DEVELOPING PLAIN IN HEILONGJIANG

Beijing GUANGMING RIBAO in Chinese 27 Oct 80 p 1

[Article by Guan Yuzan [7070 3786 3895] and Zheng Xiaofeng [6774 4562 2800]: "Build Commodity Grain Bases in Accordance With a Rational Ecological System; Agricultural Experts Propose Optimum Plan For Rational Development of Sanjiang Plain"]

[Text] Following more than a year of comprehensive observation and study of natural resources for agriculture on the Sanjiang Plain that employed many disciplines, Heilongjiang agricultural scientists and technicians have come up with an optimum plan for the development of the Sanjiang Plain that is in accordance with a rational ecological system.

Between last October and this September, a comprehensive multi-discipline observation and study was made of the Sanjiang Plain with the help of the State Scientific and Technological Commission and the Chinese Academy of Sciences and experts in agriculture, forestry, soil, water conservancy, farm mechanization, aquatic products, and wild animals. The study contained a 19 point special investigation report and comprehensive agricultural zoning report. A total of four academic conferences of specialists were held for a thoroughgoing and systematic study of the rational exploitation and use of the national resources of the Sanjiang Plain.

This development plan contained eight specific proposals dealing with land use, a plan for water conservancy projects, an adaptable development of the mechanization of agriculture, use of marshlands, and the direction of development of the livestock industry. With regard to wastelands, it was unanimously agreed that soil, water, and climatic conditions on the Sanjiang Plain are quite superior, and that it is a wasteland suited to many purposes. But given the realities of China in which arable land reserve resources are scant, even while giving priority consideration to the use of land for growing crops, rational arrangements have to be made, as well, for use of land by the forestry and livestock industries. In order to increase the productivity rate of the soil, the experts believed that the main direction for the development of a livestock industry on the Sanjiang Plain should be fodder bases producing non-staple agricultural products, and man-made hay farms in close combination with agriculture for intensified operations. In the plan for water control on the Sanjiang Plain, the experts felt that control of water was an urgent task for developing and bringing under control the Sanjiang Plain. In regard to the marsh problem, the experts said that the low parts of the Sanjiang Plain are an area of marsh concentration such as is rare in the northern part of China, and that in order to develop scientific research in marshlands and preserve rare wild life resources, a portion of the marshlands should be designated a natural preserve. In marshlands with a great concentration of reeds, there should be planned building of reed production bases. In marshlands suited for development to grow paddy rice, there should be planned development for this purpose. Thus, both grain production can be increased, and a fine ecology can be maintained.

As a result of comprehensive study, the experts unanimously felt that development and construction in the Sanjiang Plain should emphasize building of a commodity grain base in the comprehensive development of a modernized agricultural base of farming, forestry, livestock raising, sideline occupations, and fisheries. As regards, the use of land for these purposes, it would generally be "4, 4, 1, 1," meaning that 40 percent would be devoted to farming and forestry, 40 percent to the livestock industry, and marshlands and water surfaces each getting 10 percent.

9432
CSO: 4007

BRIEFS

NENJIANG PLAIN POTATO HARVEST--The Nenjiang Plain in Heilongjiang Province, the principal potato-producing area of China, had a bumper potato crop this year, with output totaling more than 200 million jin. The potatoes produced on the Nenjiang Plain are large, regular, high yielding, and smooth; they are also resistant to degeneration and are highly adaptable. They are acclaimed everywhere throughout the country, and people come here pell-mell to get seed potatoes and buy commodity potatoes. Some of the potato production is also available for export. About 1.2 million mu of potatoes are currently grown on the Nenjiang Plain annually. This amounts to 80 percent of the growing area of Heilongjiang Province. Yields average more than 2,000 jin per mu. Each year, more than 200,000 tons are shipped to places inside and outside the province, and they process a large amount of the starch from the potatoes for sale inside and outside the province. [Text] [Hong Kong ZHONGGUO XINWEN in Chinese 11 Nov 80 p 2] 9432

CSO: 4007

BRIEFS

COTTON HARVEST--Suixian County in Hubei Province reaped 265,000 dan of cotton in 1980. [Wuhan Hubei Provincial Service in Mandarin 1100 GMT 18 Jan 81]

CSO: 4007

BRIEFS

GRAIN PROCUREMENT--Hengdong County in Hunan Province sold 112 million jin of surplus grain to the state besides fulfilling the procurement quota of more than 50 million jin in 1980. [Changsha Hunan Provincial Service in Mandarin 1100 GMT 18 Jan 81]

CSO: 4007

BRIEFS

AGRICULTURAL OUTPUT--The Xuzhou Prefectural CCP Committee and government in Jiangsu Province have adopted effective measures to further consolidate and develop the excellent situation in the prefecture. During the past 4 years, the prefecture's grain and oil-bearing crops output increased by 7 billion jin and 120 million jin respectively. Cotton output was doubled with a total of some 870,000 dan last year. The peasants' food ration has increased from 393 jin in 1976 to over 500 jin and per capita distribution increased from 36.4 yuan to 88 yuan. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 16 Jan 81]

CSO: 4007

SHAANXI

GAINS MADE IN AFFORESTING DESERT AREAS OF SHAANXI

Beijing GUANGMING RIBAO in Chinese 1 Nov 80 p 2

[Article by Chen Yichao (7115 0001 6389): "Great Hopes for Afforestation, Desert Control"]

[Text] Is afforestation possible in a desert region? Can afforestation control the sand? These are questions of popular concern and are being frequently debated. This reporter recently attended an afforestation and desert-control experience exchange conference in Datong Municipality in Shanxi and interviewed the delegates representing various areas of the North, the Northwest, and the Northeast. Some affirmative answers to these questions were heard from them.

Clear Direction, Abundant Confidence

Yulin Prefecture of Shaanxi Province is in the middle section of the "Northern Three" protective forest belt. It is one of the key areas of afforestation for sand control in the entire country. The state assigned to Yulin Prefecture the task of first-stage afforestation (i.e., 1978-1985) of 7.6 million mu. Can this task be completed in guaranteed quantity and quality? This reporter interviewed Liu Fengming [0491 7685 7686], head of the Bureau of Forestry of Yulin Prefecture. He said with full confidence, "We believe the task will be completed in its entirety ahead of time, because there is a clear direction in forestry work now, and everyone is full of enthusiasm."

For a long time, Yulin Prefecture onesidedly practiced a policy of "grain first." Forestry and animal husbandry were squeezed, causing a serious imbalance in the ratio of agriculture, forestry, and animal husbandry. By 1977, the afforested area in the entire district was only a little over 6 million mu. In 1978, construction of the "Northern Three" protective forest belt was listed as a key item by the state. In the past 3 years, due to the implementation of the policy emphasizing forestry and animal husbandry, the area of afforestation was increased by 3 million mu. Now that forestry has been regarded as an important item of daily schedule by the party and the government, all departments and industries are concerned and provide assistance. Every tree-planting season, the labor and materials of the entire prefecture are concentrated on afforestation work. The labor spent in afforestation amounts to 10 percent of the total labor expended in the prefecture. Liu Fengming said, "We also have many favorable conditions. For example, we can supply by ourselves the saplings and seeds needed for the first-stage afforestation. We have one brigade specializing in forestry and also have a group of state-operated forests and commune and brigade forests. A rate of progress of 1 million mu per year is possible, and the quality and quantity may be guaranteed. It is estimated that by 1985 the rate of forest cover may be raised from the present 14.9 percent to 24.6 percent. The forest coverage of the seven desert counties may reach 35 percent. In this manner, the desert may be gradually transformed into good places with healthy trees, grain, and animals.

Broaden the Policy To Mobilize Positiveness

Many delegates spoke of liberating thoughts and broadening the policy to mobilize the positiveness of the cadres and masses for afforestation. This is the key to accelerating the "Northern Three" afforestation project. Nei Menggu Autonomous Region's Liangcheng County Party Committee Secretary Guo Jiming [6751 4949 2494] said that ever since the policy of "whoever plants the forest will manage it and own it" was implemented in Liangcheng County this year, afforestation has progressed very quickly and the quality has improved as well. While a system of responsibility has been established for state-operated forest and commune and brigade forest personnel to construct the forests of the whole county, some wasteland and waste mountains cannot be taken care of by the state-operated forest and commune and brigade forest personnel, and so these areas are given to the commune members as private forests. Some of these [areas] cover only 1 mu and some are 10 mu. Certificates of forest rights are given for these plots. The commune members plant trees in these plots, and they have to supply their own saplings. If the survival rate reaches more than 90 percent, there will be no charge for the saplings. If the survival rate does not reach that level, sapling fees will be charged according to the number of trees. Another portion is assigned to the various organizations, groups, factories, mines, schools, etc. The right to the forest and the profits are given to the various organizations. A positive attitude toward afforestation is thus generated among the masses of workers. This spring, the various departments of the county finished planting trees on more than 1,000 mu. This year, the county's afforestation plan is 230,000 mu. This spring, 150,000 mu were planted--an increase of 50 percent over the same period last year.

Scientific Afforestation, Fast and Good

For many years, many areas constructed forests every year, but every year there were no forests to be seen. A great deal of effort was spent, but the planted trees became "small old men." They never became usable timber, and there was very little economic benefit. The important reason for this was the lack of knowledge of scientific afforestation. Yulin County of Shaanxi Province experienced this mistake.

There are 2 million mu of desert sand in Yulin County. This acreage is arid, thin, and severely wind blown. In the past, the county told the masses to plant tall desert willows [Salix matsudana], but even this species was not suitable to the arid climate and the survival rate was very low. In 1971, the Niujialiang tree farm began to pay attention to planting trees suitable for the land. On the shifting sand, they first planted drought- and wind-resistant shrubs such as Amorpha fruticosa L., Elaeagnus angustifolia L., Capparis spinosa L., etc. When the sand was basically stabilized, such tall tree species as Pinus tabulaeformis, Populus rotundifolia, Sophora japonica, Populus diversifolia, etc., were added with some species of meadow grass to form, gradually, a colony of trees, shrubs, and grass to function effectively as a sand-stabilizing forest. When the county observed the effect of this method, they began to extend this experience of the Niujialiang tree farm. In the past several years, sand-controlling forests were thus constructed to cover 200,000 mu per year. By the end of last year, 400,000 mu of waste desert in the county had been turned into agricultural fields. In the 9 years from 1971 to 1979, about 1.2 million mu of forests were preserved--about 100,000 mu above the area of forests of 18 years previously. Last year, the total grain production of Yulin County reached 100,600,000 jin, a 1.4-fold increase over that of 1970. This achievement is inseparable from the fast afforestation pace of the county. Yulin County Party Committee Deputy Secretary Zhao Boyan [6392 0590 1750] commented excitedly that it is easy to talk about scientific afforestation and planting trees to suit the land, but it is difficult to practice it. Whenever trees suitable for the land are planted, and wherever tall trees are fittingly combined with shrubs and grass, the effect of reconstructing the shifting sand may be obtained with just half the work.

6168
CSO: 5000

MORE DRAFT ANIMALS NEEDED BY POORER COMMUNES, BRIGADES

Beijing RENMIN RIBAO in Chinese 18 Sep 80 p 2

[Article by He Jiazhong [0149 0502 2973]: "Northern Shaanxi Rural Areas Must Develop Large Domesticated Animals"]

[Text] When the term motive power is mentioned, people think first of machines, but as far as a portion of harship communes and brigades of northern Shaanxi are concerned, it remains mainly large domesticated animals. When one visits the uneven terrain of the loess ravines, one walks with considerable difficulty along fields perched on precipitous mountain slopes and acquires at first hand the knowledge that machines such as tractors are in fact useless in this type of land. More important, these hardship brigades cannot afford them. To use the Yanan District as an example, there are not a few machines for agricultural use in the district, and they are very useful, but currently, the Guangsheng production team owes the commune tractor station 7,604,000 yuan and the commune tractor station owes the state a loan of 6,220,000 yuan, for which the station has to pay an interest of 130,000 yuan a year. The amount of agricultural machinery debt is very large. Moreover, a series of problems involving oil, parts, etc., are not very easily resolved. For this reason, the farmers of these poor brigades say that here " we depend mainly on animal power; we depend upon such draft animals as oxen and donkeys for plowing."

In recent year, however, the lack of animal power has become a serious problem in north Shaanxi. First, the number is reduced; second, the quality has dropped. In the past several years there has been a tendency toward fewer and fewer large domestic animals. In Zichang County in 1955, there were 18,624 head of draft animals. After all these years, by the end of last year there were only 17,549 head. In 1954 there were 310,300 head in Yulin District, while the number has stayed around 280,000 head in the most recent years. At the time of collectivization, there were more than 40,000 head of draft animals in Shenmu County; now there are only 32,000 head. Of course, there is also the factor of reduction of number of draft animals due to the increase in the number of machines, but in most cases the fact of a shortage of animal power is real, and it is more obvious among the poor communes and brigades.

At present, the level of productivity of the hardship communes and brigades of northern Shaanxi is all very low and the lack of animal power is one of the major reasons. In 1956, the Guojiagou Brigade of Yanan had more than 60 draft animals and each farmer produced 1,000 jin of grain. After all these years, the number of large domestic animals has dropped by 37 head. The number of oxen has dropped from 18 head to 11, and the number of workdays for an ox has increased from 80 to 120, with the work efficiency lower by two-thirds. One-third of the fields now depend upon the hand plow. That brigade has reduced its fields from 6,800 mu to 1,300 mu, and the average production of grain is only 500 jin per person. This is an individual case, but the reason for being passive in the matter of planting reduction is the insufficient work force.

In the past 2 years, there has been development in animal husbandry in northern Shaanxi. When we spoke of this condition, the cadres and masses told us happily that there are more pigs and more sheep. Although the number of large domestic animals is increased, development is slow. The basic reason is the extreme leftist policy of so many years. In the past, private breeding was prohibited. In collective breeding, concentrated feeding was required, the more public the better. There was no obvious system of responsibility, and penalties and awards were not distinguished. Whether the animals were well cared for or not did not make any difference. This sort of condition necessarily caused a reduction in their number and a degeneration of quality. In order to resolve the problem of the shortage of animal power that exists in the entire region of northern Shaanxi, proper measures must be adopted as soon as possible. First, the policy must be carried out. Yanan Municipality designates areas to raise animal feed and permits and encourages commune members to raise large animals. This year, 270 head are being raised privately--three times the number last year. This fact demonstrates that this is an effective means of developing large draft animals. More important, a system of responsibility must be carried out in the collective ownship of domestic animals. The masses have created some good experiences in this respect. The 13 families of the Malinshan production team of Pingzhuang Brigade of Zichang County own 13 donkeys, one for each family. The team distributes hay and feed on a 20:80 ratio to breed colts, while workpoints are given within the team. The results of the system are very good, and all the animals have grown fat. The collective work has not been adversely affected. Now seven of the donkeys have been mated, and five of the young are female. This system is frequently practiced now in northern Shaanxi. All cadres with whom we came into contact believe it to be practical. Some comrades in Yanan Municipality also believe that in those hardship areas one of the effective ways of combating the problem of degeneration of draft animals is to raise the team-owned animals in private families.

There are many practical problems in need of being resolved with respect to developing draft animals. For example, capital is a very difficult problem with some brigades. They are eagerly expecting that a portion of the aid-to-poor-brigades fund may be designated for developing draft animals. In the past, loans were used mostly to buy tractors. Some results have of course been obtained, but the really difficult brigades in the deep ravines often have not benefited from them. They are saying that helping them to get some oxen and donkeys would be the greatest support. Besides, problems of breed, feed, etc., are all awaiting further resolution.

6168
CSO: 4007

SHANDONG

BRIEFS

SHANDONG PEASANT HOUSES--Beijing, 12 Jan (XINHUA)--Reports from Shandong Province say that more than 3 million peasant families, or 20 percent of the province's total, have built houses of their own over the past few years. Figures from Shandong's nine prefectures and major cities showed that over 13,000 production brigades have worked out programs for the building of new villages, which include the distribution of villages and towns, public facilities and environmental conditions. The new housing boom came as a result of the increased income of peasants in the last few years. Liaochieng, Dezhou, Heze and Huimin prefectures in the province, listed among China's poorest areas in 1978, chalked up an average peasant income of more than 90 yuan per capita in 1980, counting only the income derived from the collectives. In 1978, the figure was 46 yuan. [Beijing XINHUA in English 0704 GMT 12 Jan 81]

CSO: 4020

SICHUAN

DEVELOPMENT OF MORE SMALL HYDROELECTRIC PLANTS URGED

Chengdu SICHUAN RIBAO in Chinese 18 Oct 80 p 2

[Article: "Summarize Experiences, Do a Good Job of Small Hydroelectric Plant Construction"]

[Excerpt] Small hyiroelectric power plant development in Sichuan Province has been quite rapid during the past several years. Almost 10,000 small hydroelectric power installations have been made in rural villages throughout the province with a capacity of about 720,000 kilowatts, and generating more than 1.6 billion kilowatt hours of electricity annually. The rapid development of small hydroelectric power plants has not only promoted development of agriculture, commune and brigade enterprises, and local industry, it has also reduced pressure on the big national electric grids to provide electricity, thereby helping development of large industries in cities. However, in an overall sense, the extent of use of electricity by the agricultural population in our country is still very low, and the electricity generating capacity of existing small hydroelectric power plants is also limited. Last year, agriculture and small local industries throughout the province used 2.75 billion kilowatt hours of electricity of which only 39 percent was directly supplied by local small hydroelectric power plants, and it was really only half that, because following a hookup of grids from small electric power plants with the large electric grids, the large electric grids supplied a portion. Right now, there is a very noticeable shortage of electricity in cities and towns, and in many rural villages, the smooth development of agricultural, industrial, and sideline production has been hurt by the shortage of electricity. It is not realistic to expect that within a short period of time national electric grids can be expanded to increase the supply of electric power to agriculture and to small industries in counties and communes. Therefore, full use of this natural advantage of hydropower resources, and a further quickening of construction of small hydroelectric power stations is a major task in speeding the modernization of agriculture.

Looked at in terms of many years of practice, and particularly of the past several years, a good job of further small hydroelectric plant construction will require implementation of the programs and policies pertinent to small hydroelectric power, and an arousal of enthusiasm at all echelons and in each and every quarter to work on hydroelectric power. During the past several years, individual places have generally adhered to a policy of "those who build are those who have, and those who care are the ones who get the benefits." Some places that have built fairly large small mainstay electric power stations, have not in an equalitarian manner and indiscriminately transfurred commune and brigade labor forces and funds for the task, but rather have resorted to shareholding with divisions of profits in a system of joint operation with communes and brigades, which has played a major role in arousing enthusiasm for operating small hydroelectric power stations at all echelons. In the 3 year period from 1977 until last year, newly installed electric generating capacity amounted to 250,000 kilowatts, which was more than half of the new generating capacity of the 27 previous years, for an annual incremental increase of 83,000 kilowatts or a 15.3 percent incremental rate of increase. These facts demonstrate that construction of small hydroelectric stations has many aspects, ramifies into countless homes and households, has strong mass character, strong regional character, and strong policy character. The party's policies must be used to arouse the masses, and get the three levels of counties, communes, and brigades to work on electric power generation, mostly through reliance on their own efforts. In addition, administrative, trade, and ownership limitations must be broken through to enlarge the scope of joint action, so that joint action can be taken not only among communes and brigades or among regions and communes and brigades, but also so that there can be joint action among the several echelons of the state, regions, provinces, prefectures, counties, and communes.

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NEW METHOD FOR CULTIVATING RICE HAS PRELIMINARY SUCCESS

Chengdu SICHUAN RIBAO in Chinese 18 Oct 80 p 2

[Article by Li Fangcai [2621 2455 2088], Xiangling Commune: "Preliminary Success With Semi-dry Sparse Planting Methods for Paddy Rice; Maintains Fine Soil Structure and Makes the Most of Row Edge Advantages"]

[Text] This spring, pedologist and ranking professor at Southwest Agricultural Academy, Comrade Hou Guangjiong [0186 0342 3518] personally headed a special soil survey team from the Xiangling district of Changning County that built some long and narrow small dryland mounds on 0.95 mu of paddy fields in the No 3 Gaobei Brigade of Xiangling Commune. On these mounds, they planted hybrid rice, Shanyou No 2, and achieved preliminary success in the use of semi-dry sparse planting methods for paddy rice. Total output of dry paddy was 972 jin for an average yield of 1023.2 jin per mu. On another 2.63 mu plot of paddy field, they planted the same variety of rice using conventional methods in a comparable experiment, harvesting yields of only 836.5 jin per mu.

In the semi-dry sparse planting method, the rice seedlings were raised in moist paddy fields with seeds being sparsely sown so as to grow sturdy seedlings or seedlings with numerous tillers. Transplanting was done on 4 May. In ordinary years, this field was banked around the edges and contained water during winter. About 20 days before transplanting the seedlings, the field was harrowed but not raked after harrowing. Before transplanting the seedlings, an ample quantity of base fertilizer was applied. Rows of long narrow mounds were raised at a distance of 2 chi apart by dragging a line. The long narrow mounds were from 6 to 7 cun high and 8 to 9 cun wide, and throughout the field the long mounded rows were kept at a more or less uniform height. Seedlings were planted on the mounds in two rows to a mound, not very deep, and in a 5 x 7 cun interlocking pattern of holes with more than one seedling per hole so the plants would grow in clusters. There were about 12,000 such holes per mu. About 20 days following transplantation, the vigorous period of tillering began and the water level was gradually reduced. The rows of mounds and the point where the stem and roots join on the seedlings began to appear above the surface of the water, thereby causing the root system of the seedlings to develop. Thereafter, the semi-dry period of growth began and continued through heading and ripening, with water being kept only in the ditches alongside the rows of mounds. When weeds became too numerous on the rows of mounds, they were covered over with mud from the ditches so the seedlings would not be disturbed by pulling them. On 24 August, the Shanyou No 2 in the experimental fields became ripe after a total period of 147 days growth. Per mu yields were more than 20 percent greater than from the conventional planting methods used locally.

HIGH RICE YIELD FROM DIRECT TRANSPLANTING ACHIEVED

Chengdu SICHUAN RIBAO in Chinese 18 Oct 80 p 2

[Article by Fu Shida [0265 0099 6671] and Shi Huagao [4258 0553 7559]: "High Output From Direct Transplanting of Hybrid Rice From Greenhouses"]

[Text] This year, Rong County got per unit rice yields of from 50 to 100 jin more from the direct transplanting of rice from greenhouses to more than 5,490 mu of paddy fields than from two stage propagation in greenhouses.

In 1978, Rong County began to increase the growing of hybrid rice in greenhouses in a two stage process whereby seedlings were temporarily placed in a bed after being removed from a nursery bed. This produced sturdy seedlings with numerous tillers and made for increased output of rice. Since this two-stage propagation of seedlings required a large amount of labor, the time of transplanting seedlings was an extremely busy one, and sometimes transplanting standards and quality could not be maintained. It was also easy to damage the roots of the seedlings when scooping them up for transplanting, and both cadres and commune members wished there were a better way. Last year, No 1 Brigade in Guoshui Commune directly transplanted more than 150 mu from the nursery bed to the fields, and harvested yields averaging 980 jin per mu, which was more than 50 jin more than the yield from the two stage propagation and transplantation.

Practice showed that a change from the two stage propagation in greenhouses to one stage with direct transplanting to the fields was able to save the labor that had been used for digging up the seedlings for their first transplanting and for transporting the seedlings, thereby taking the pressure off of both men and animals somewhat during the busy season, while also resulting in early transplanting of the rice, early care of it, formation of numerous tillers in the lower portions of plants, increasing the clustering rate, large heads, high output, and a from 5 to 7 day advance in the time of ripening. The County CCP Committee summarized and spread the experiences of No 1 Brigade of Guoshui Commune, and this year the 70 communes throughout the county made test plantings by the direct method with universal increases in output resulting. Currently, each commune and brigade is in process of summarizing experiences in an effort to make direct plantings of small seedlings from greenhouses to the shallowly inundated winter paddy fields next year when soil quality and water resources will be quite good.

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The semi-dry sparse planting method of growing paddy rice is a good method for changing the paddy field system that is suited to the physiological requirements of paddy rice and that increases yields per unit of area.

According to a briefing given by the soil survey team, this method is able to maintain the fine structure of the soil and make the most of edge of the row advantages, providing good growing conditions for the paddy rice. In addition, it permits savings in water and labor. After the intermediate crop of rice was harvested. Shanyou No 2 variety was then planted as the late crop using the semi-dry sparse planting method in a comparison experiment. Its growth was very good.

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NEW POTATO CULTIVATION METHODS DESCRIBED

Propagation From Seeds

Chengdu SICHUAN RIBAO in Chinese 6 Oct 80 p 2

[Text] Remarkable achievements have been made in research and production work related to the propagation of potatoes from seeds in the Liangshan Bi Nationality Autonomous Zhou. The area of the zhou currently planted to potatoes propagated from seeds totals more than 100,000 mu, or 11.6 percent of the area planted to potatoes. Average yields are 1,465 jin per mu for an increase in output of from 39.9 to 89.6 percent. In Huili County, potatoes planted from seeds account for 50 percent of the area planted to potatoes. In Mianning County, virtually only potatoes planted from seeds are grown. At the No 3 Production Team of No 2 Brigade in Zhongxin Commune in this county, yields run at 6,704 jin per mu, with individual yields amounting to as much as 7000 or 8000 jin per mu. The highest yield from a single potato plant propagated from seeds was 27.5 jin, and the heaviest single tuber weighed 3.5 jin.

Research and production work on growing potatoes from seeds in Liangshan Zhou began in 1972. In experimental plantings of 100 varieties using techniques introduced from elsewhere, a superior variety of seed that was able to pollinate and set fruit naturally was bred, called "Keyi." As a result of a combination of favorable natural conditions in this zhou, plus the long period of time and the experience that the masses have had in the planting of potatoes, experimental plantings were made, and the cultivation of potatoes from seeds spread to numerous communes and state farms in 18 counties and (municipalities). The directly grown plants now used for large area commodity production of potatoes were propagated from round seeds smaller than sesame seeds contained in berries formed on carefully selected potato plants. Advantages of using potato seeds to grow potatoes are that most potato diseases cannot be transmitted through seeds, and many kinds of diseases are thus eliminated or stopped. Aside from maintaining cleanliness, there is no need for complicated equipment, and the technique is easy for the masses to master. Planting of potato seedlings grown from seeds has virtually prevented the degeneration of seed potatoes as a result of diseases that has occurred for several years; thus, output has greatly increased.

Recently, Dr Lichade Suoye [3810 2686 1795 4792 5102] [phonetic, possibly Richard Sawyer], director of the International Potato Research Center and Noma Suoye [6179 3854 4792 5102] [phonetic, possibly Norma Sawyer] as well as Dr Xideji Sadike [6007 1795 1015 5646 6611 0460], a plant physiologist made a special observation trip to Liangshan Zhou in the company of Zhu Dewei [4281 1795 1414], deputy director of institute at the Chinese Academy of Agricultural Sciences, and potato experts from the Sichuan Academy of Agricultural Sciences. During the observations, Dr Suoye said happily: "An extremely fine production area for growing potatoes from seeds." "You have had a great deal of success in commodity production of potatoes, and we want to express our admiration." "Your is the first country in the world to apply potatoes grown from seeds to commodity production of potatoes." He believed that Chinese scientists and scientists at the International Potato Research Center could cooperate in the field of the use of potato species grown from seeds.

Now, the scientists and technicians and the broad masses of the people involved in research and production of potatoes grown from seed in Liangshan Zhou have further expanded the area planted, have intensified breeding of new varieties, and have diligently worked to make use of single cross varieties so that breeding work with potatoes may be directly done from seeds like rice or corn to increase output.

Potato Diseases

Chengdu SICHUAN RIBAO in Chinese 6 Oct 80 p 2

[Text] The research unit of the Wushan County Agricultural Technical Station has been successful in its experiments with detoxication of the tips of potato plant stalks and with culturing of seedlings from cuttings. This represents a major breakthrough in technical innovations to halt the continual degeneration of potatoes. In this connection, the Wanxian Prefecture Science Commission, in conjunction with other units concerned, recently convened a special on-site meeting at the Wushan experimental base, organizing persons concerned from throughout the prefecture to participate and learn.

In order to solve the problem of degeneration and resulting reduced output caused by virus infestations of potatoes, we used advanced world scientific techniques. Seedlings were grown from cuttings in a culture medium in test tubes in a culturing laboratory in a four stage system of propagation, and after more than 4 years, a virum-free variety was propagated for a successful detoxication of the tips of potato stalks. This research technique is currently in an experimental stage throughout the country. Acting in the spirit of detoxication of the tips of potato stalks through the use of soil culturing methods that was put forward at last spring's nationwide conference on potato planting stock, the Wushan County Agricultural Techniquen Station set up a research unit, determined to move this research matter out of laboratory test tube culturing into culturing in the soil, with direct transplanting into open fields for growth. The research unit selected the famed Wuxia potato, which had undergone propagation, and they selected as the test base the No 4 Wuxia Team of the Yangliu Commune, which had participated in the nationwide conference of rural village scientific experiment teams. They also chose fertile, friable soil in which no solanaceae plants such as capsicum, tomatoes, or tobacco had been grown for 5 years or more, or else they brought in humus from the mountains, and used wooden chests or specially made pottery pots to begin their experiments. The first several experiments aborted, but they summarized experiences and carried on. In early January this year, the research team obtained 60 virus-free seedlings from the Prefecture Institute of Agricultural Science and from the Wuqi Agricultural Bureau. After taking cuttings at three different times, by early April they had propagated close to 10,000 small seedlings. They transplanted 7,616 plants into open fields, 7,341 of which survived for a survival rate of 97.8 percent. The total test area was slightly more than 0.9 mu from which potatoes were dug on 0.42 mu prior to the on-site meeting for a toxic-free yield of 42.4 jin.

Soil cultured seedlings propagated by use of the potato stalk tip detoxication with culturing of cuttings in soil showed a higher seedling survival rate than for seedlings propagated in test tubes in the culturing laboratory. They grew more healthily; their leaves were bigger; and leaf color was darker. After 2 years of propagation by the soil culture method, they can be put into production. Costs are greatly lower than propagation in test tube culture mediums in the culturing laboratory, and operations are quite simple. The masses readily accept them, which makes for their spread over a large area.

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FARM MACHINE UTILIZATION DISCUSSED

Chengdu SICHUAN RIBAO in Chinese 16 Oct 80 p 2

[Article: "Give Full Rein to the Role of Farm Machines; Promote Development of Agriculture, Industry, and Sideline Occupations; Special Correspondent Critiques Present Day Farm Machine Work in Sichuan Province"]

[Excerpts] Currently, the rural communes and brigades in Sichuan Province have farm machines with a total of 7.79 million horsepower. There are 100,000 large and small tractors and more than 170,000 machines (or attachments) to be used with them. The fixed asset value of farm machines totals 24.7 percent of the value of all fixed assets in the three tiers of commune and brigade ownership. In 1979, 4 billion cubic meters of water were lifted by machines and power equipment throughout the province in advance of spring planting, and in addition to the irrigation of minor spring-sown crops, about one-third of the area to which paddy rice was transplanted had water pumped on to it by machines. The area cultivated by machine was 14.8 percent of the total area, and machine threshing was done on 67.8 percent of the area sown to paddy rice and wheat. The role played by farm machines has become ever greater in fighting drought to reap bumper harvests, in rush planting and rush harvesting, in keeping pace with the farming seasons, in prevention and control of diseases and insect pests, in promoting diversification in communes and brigades and developing industries and sideline occupations, and in reducing the intensity of labor by commune members.

It must be realized that the structure of agriculture in Sichuan Province is currently undergoing readjustment in which the former practice of concern only for grain production has been changed to the overall development of a greater agriculture including farming, forestry, livestock raising, sideline occupations, and the fishing industry. It is also developing toward specialization, socialization, and cooperative division of labor, and toward comprehensive agricultural, industrial, and commercial operations. In the process of realizing the modernization of agriculture, the function of farm machines has become more important. At the present time, the level of farm mechanization in Sichuan Province is still very low, and farm machine enterprises should continue to develop and continue to advance.

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BRIEFS

SICHUAN MUSK DEER FARMS--Chengdu, 22 Jan (XINHUA)--Sichuan Province in southwest China, which produces half of the country's musk, has set up four state-run and 21 commune-run farms raising a total of more than 1,000 musk deer to increase musk supplies. China's musk comes mainly from the Qinghai-Tibet plateau and the grasslands in northwest Sichuan. In recent years, the musk deer population has greatly declined because of indiscriminate killing of the animals regardless of their size and sex. The Sichuan Provincial Government, in an effort to encourage commune members to raise and protect these deer, now rewards them with 100 yuan when they bring in one alive. And Sichuan's Wuxi county, on the upper reaches of the Yangtze River, has established 10 musk deer sanctuaries covering 53,300 hectares of mountains and forests. Other areas are also taking measures to foster musk production. People's communes in Aba Tibetan autonomous prefecture last year set up 21 musk deer-raising farms with some 400 animals in all. [OW230115 Beijing XINHUA in English 0816 GMT 22 Jan 81]

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BRIEFS

XIZANG GRAIN, LIVESTOCK--Lhasa, 22 Jan (XINHUA)--China's Tibet autonomous region reported a 10 percent increase in grain output last year over the preceding year. Twenty-one of the region's 60 counties reaped their biggest grain harvest in history. Heartening news comes from other sectors of the economy as well. The total number of domestic animals in Tibet, such as sheep and cattle, rose by 13.4 percent in 1980 over 1979, thanks to a higher survival rate of the young animals. Tibet's output of rapeseed registered a five percent increase compared with 1979 and earnings by collective sideline occupations went up 43.7 percent over the previous year. Local people, leaders and commoners alike, attribute these successes to favorable weather in addition to implementation of new economic policies. In spring last year, the central government decided to exempt Tibetan peasants and herdsmen from agricultural taxes and to set no purchase quotas for grain and animal products, and to allow free exchange in the region with a view to promoting the local economy. [Text] [Beijing XINHUA in English 0713 GMT 22 Jan 81]

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YUNNAN

BRIEFS

BUMPER HARVEST--Yunlong County, Yunnan, reaped a bumper agricultural harvest in 1980, with total grain output topping the previous year by more than 10 percent and total number of draught animals increasing by 4 percent. In 1980, the peasants' private-owned draught animals and goats numbered more than 32,000 head, up from 11,000 head of 1979. [Kunming Yunnan Provincial Service in Mandarin 1100 GMT 19 Jan 81]

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ZHEJIANG

BRIEFS

TEA OUTPUT INCREASE--Zhejiang Province, which ranks first nationally in tea production, experienced an all-round increase in tea output this spring, summer, and fall, with total output amounting to 1.4 million dan, an increase of 100,000 dan over last year, and the highest level in history for the province. During the past several years, tea producers and research units in Zhejiang Province have given special attention to the breeding of superior varieties of tea plants, with the result that the output of quality teas has increased. Picking of the leaves of Longjing No 43, a superior variety of tea plant that has been growing for several years, has just begun. Since it buds early, its leaves may be picked several times before Qingming [circa 5 April], and consequently the output of high-quality tea increases from the 3 or 4 jin from ordinary tea plants to more than 50 jin. In recent years, Zhejiang Province has had very good success in reviving the production of traditionally famous teas and in creating new teas. At a meeting held in Zhejiang Province this year to compare and appraise teas, another 41 varieties were acclaimed to be teas of renown. Throughout the tea-producing areas of Zhejiang Province this year, communes and brigades have built 34 superfine tea plants to increase even further the quality of tea processing. State procurement of autumn tea has not yet been completed in Zhejiang Province, but the quantity procured already exceeds that of last year, and the quality is uniformly fine. [Text] [Hong Kong ZHONGGUO XINWEN in Chinese 6 Nov 80, p 1]
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ZHEJIANG FISH COLD STORAGES--Hangzhou, 18 Jan (XINHUA)--Zhoushan prefecture in east China's Zhejiang Province, a noted fishing area, has built seven more cold stores, bringing its total to 12, according to the prefectural authority. The cold stores can hold 12,240 tons of fish. Zhoushan fishing ground yields about one-eighth of China's marine fish. [Text] [Beijing XINHUA in English 1207 GMT 18 Jan 81]

BUMPER HARVESTS--The suburban areas of Wenzhou Municipality in Zhejiang reaped an all-round bumper agricultural harvest in 1980 with a total grain output reaching over 489 million jin, or 24 percent more than the previous year, and rapeseed output some 7.8 million jin, or 50 percent more than 1979. The output of sugarcanes, tea leaves, tangerines, silkworm cocoons, hemps, soybeans, peanuts, sesame seeds and aquatic products also increased by big margins. [Hangzhou Zhejiang Provincial Service in Mandarin 1100 GMT 16 Jan 81]

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